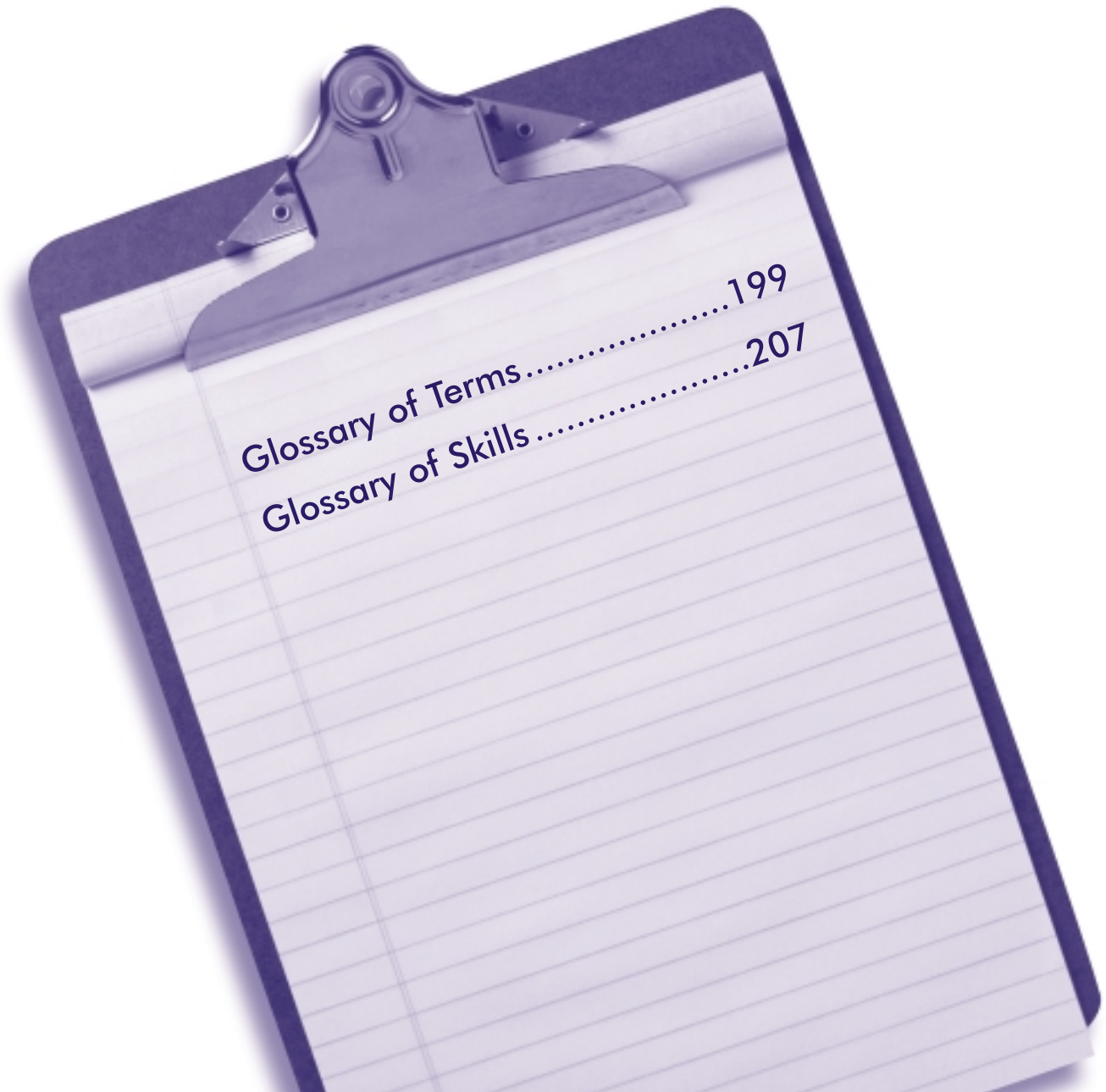
Glossary



Glossary of Terms

Note: This glossary defines unfamiliar terms specifically related to solid waste and the environment; some words listed in the activities under "Vocabulary" will not be found in this glossary.

A

Aerobic—with oxygen. During the composting process, certain bacteria need oxygen to break down the mix of organic materials. This is known as aerobic decomposition.

Anaerobic—without oxygen. In a landfill, certain bacteria decompose organic materials without oxygen and create methane gas through a process known as anaerobic decomposition.

Ash (also **combustion ash**)—solid residue that remains after the combustion, or burning, of waste.

B

Backyard composting—the homeowner's practice of collecting leftover kitchen scraps (excluding meats and fats) and yard trimmings for decomposition in a private compost pile. Backyard composters can use their compost as a soil enhancement for their gardens.

Bacteria—single-celled microorganisms. Certain types of bacteria break down organic materials (using an ***aerobic*** and/or ***anaerobic*** process).

Bedding—organic material, such as shredded newspaper, used to retain moisture and allow proper air circulation and drainage to provide a healthy environment for worms in a ***vermicomposting*** container.

Biodegradable—materials that can ***decompose***, usually by bacteria or sunlight, into basic components. Most organic materials (paper, grass clippings, food scraps), under the right conditions, are biodegradable.

Biodiversity (also **biological diversity**)—indicated by the numbers of different species of plants and

Common Recyclable Items and Related Terms

Aluminum—a lightweight, silver-white, metallic element that makes up approximately 7 percent of the Earth's crust. Aluminum is used in a variety of ways, but perhaps most familiarly in the manufacture of soft drink cans.

Bauxite—a rock in which aluminum is found in high concentrations.

Cardboard—a thin, stiff material made of paper pulp and used in making cartons and other forms of packaging.

Cullet—clean, generally color-sorted, crushed glass used to make new glass products.

Fibers—the long, thick-walled cells that give strength and support to plant tissue. The fibers of wood and cloth are used in making paper.

Glass—hard, brittle, generally transparent or translucent material typically formed from the rapid cooling of liquefied minerals. Most commercial glass is made from a molten mixture of soda ash, sand, and lime.

Metal—an element that usually has a shiny surface, is a good conductor of heat and electricity, and can be melted down, fused, or hammered. Metals include iron, gold, sodium, copper, magnesium, tin, and aluminum.

Paper—a thin material made of pulp from wood, rags, or other fibrous materials and used for writing, printing, or wrapping.

Plastic—a material made from petroleum capable of being molded, extruded, or cast into various shapes. There are many different kinds of plastic made from different combinations of compounds.

Pulp—a mixture of fibrous material such as wood, rags, and paper, that is ground up and moistened to be used in making paper or cardboard.

Steel—a strong, durable material made of iron and carbon, and often other metals, to achieve different properties. Steel is often used as a component in cans and as a structural material in construction.

Tin—a soft silver-white metallic element, capable of being easily molded and having a low melting point. Tin is often used together with other metals in making cans for packaging.

animals found in a natural environment. Many different species of plants and animals within an ecosystem is indicative of a healthy environment.

Brownfields—abandoned or unused industrial and commercial land that cannot be developed or expanded because of real or perceived contamination with toxic substances.

Bulk—when food or other products are sold unpackaged or in large volumes to reduce packaging waste. Consumers who buy one large bottle of juice rather than many small containers of juice, for example, are "buying in bulk."

Byproduct—excess material or waste produced in addition to the primary product. Sludge is a byproduct from the manufacture of paper, for example. Many manufacturers look for innovative ways to reuse or recycle the byproducts created during the production process to reduce waste.

Castings—manure from red wriggler worms that can be used as a soil conditioner to provide aeration, drainage, and nutrients to soil.

Climate—the average course or condition of weather over a period of years based on conditions of heat and cold, moisture and dryness, clearness and cloudiness, wind and calm, applied to a specific location or globally. Southern Florida, for example, has a sunny, dry, warm climate.

Closing the loop—purchasing products made from recycled materials. Recycling is a cycle. It is not enough simply to collect recyclables for manufacture into new products. People must then buy products made with recycled content, thus closing the loop.

Combustion/Incineration—a rapid chemical process that produces heat, gas, ash, and usually light through burning. This process is one option for the *disposal* of *municipal solid waste*. It can also be used as a treatment or disposal option for hazardous waste. See *combustor*, *waste-to-energy*.

Combustor/Incinerator—a facility for the controlled burning of waste. Burning municipal solid waste can reduce its volume and weight. Some facilities capture energy from the steam or heat that is produced during the burning process. (See *waste-to-energy*.) Burning hazardous waste can be considered a form of treatment and can reduce the hazardous components of the waste.

Compaction—the act or process of pressing materials together to occupy the smallest volume possible; a common practice at a *sanitary landfill*.

Compost—a crumbly, earthy, sweet-smelling mixture of decomposing organic matter (e.g., leaves, food scraps) created in a controlled, *thermophilic* environment that is often used to improve the texture, water-retaining capacity, and aeration of soil.

Composting—the controlled biological decomposition of organic material under *aerobic* or *anaerobic* conditions. Organic materials are broken down (*decomposed* by microorganisms) into compost, also known as *humus*. Composting can occur in a backyard bin, a pile, long *windrows*, or in a *vermicomposting* container.

Conservation—the protection or wise use of natural resources that ensures their continuing availability to future generations; the intelligent use of natural resources for long-term benefits.

Consumption—the amount of any product or resource (e.g., material or energy) used in a given time by a given number of consumers.

Contamination—the process of adding one substance to another substance, such as as motor oil to water, that reduces its quality; to make impure or unsafe by contact with potentially harmful substances.

Corrosive—a substance capable of dissolving or breaking down other substances (especially metals) or causing skin burns. A corrosive has a *pH level* below 2 or above 12.5.

Decompose—to break down into basic components, given the right conditions of light, air, and moisture; refers to materials such as food and other plant and animal matter.

Deforestation—the clearing and removal of trees from a forested area.

Disposable—products or materials that can be or are usually thrown away after one use or a limited amount of time. For example, used paper plates are disposable.

Disposal—refers to the process of throwing away unwanted materials. These materials are placed in a landfill or combusted rather than recycled, reused, or composted.

Disposal cell—a fixed area in a *sanitary landfill* where waste is disposed of, compacted into the smallest space possible, and then covered with soil on a daily basis.

Durable—goods that can be used more than once and withstand long use, wear, and decay. Appliances are examples of durable goods.

Dump—site where waste is disposed of in an unmanaged, uncovered area. Current landfill restrictions have made dumps illegal. See *sanitary landfill*.

Ecosystem—community of plants and animals that interact with one another and with the surrounding nonliving environment. Examples of ecosystems include ponds, forests, and beaches.

Effluent—waste material discharged into the environment; refers to the treated liquid *emitted* from a manufacturing facility or municipal wastewater treatment plant.

Emission—the discharge of gases or particles, such as from a smokestack or automobile engine.

Energy—capacity for a system or an object to do work (i.e., cause a change by pulling, pushing, or heating). Energy generated from *incineration*, for example, can be harnessed to provide electrical power for communities.

Environment—the external conditions that influence the development and survival of an organism or population; usually refers to air, water, land, plants, and animals.

Environmental impact—the effect of an activity or substance on the environment.

Environmentally preferable products—those products that have a reduced effect on human health and the environment when compared to other products that serve the same purpose. For example, products that contain recycled content, require less energy or create less waste during production and manufacture, use less packaging, or are reusable or recyclable are preferable.

Flammable—describes a substance that ignites and burns.

Food chain—the transfer of food energy from one organism to the next. As one example of a simple food chain, an insect consumes a plant and is then consumed by a bird.

Food web—the complex and interlocking networks of *food chains* within ecosystems where plants and animals coexist and depend on one another for energy needs.

Fossil fuels—fuels such as petroleum or coal formed over millions of years from the remains of ancient organic materials.

Geothermal energy—the internal heat of the earth collected from underground concentrations of steam or hot water trapped in fractured or porous rock.

Global climate change—natural or human induced change in the average global temperature of the atmosphere near the Earth's surface. This condition poses serious dangers around the world, potentially prompting such disasters as flooding, drought, and disease.

Grasscycling—refers to a method of *source reduction* whereby grass clippings are left on the lawn rather than bagged and set out for collection.

Greenhouse effect—the excessive trapping of heat in the Earth's atmosphere by a blanket of gases. Gases such as water vapor, methane, and carbon dioxide exist naturally and help retain the Earth's normal surface temperature. Changes in the normal volume of gases in the atmosphere, due to human-induced activities, are believed to contribute to *global climate change*.

Greenhouse gas—gas such as methane, nitrous oxide, ammonia, sulfur dioxide, carbon dioxide, and certain chlorinated hydrocarbons that affects the overall heat-retaining properties of the Earth's atmosphere. A build-up of these gases creates a warming of the Earth's atmosphere, thus changing the global climate.

Ground water—water stored in porous spaces of soil and rock underground. Many communities depend on ground water for their drinking water.

Habitat—an area where a living organism is typically located that provides adequate food, water, shelter, and living space for survival.

Hazardous waste—waste that is often produced in large quantities by businesses and industrial facilities that can be defined as ***toxic***, ***ignitable***, ***corrosive***, or ***reactive***. This type of waste is regulated by a law called the Resource Conservation and Recovery Act (RCRA) to minimize risks to human health and the environment.

Household hazardous waste—small quantities of unused or leftover hazardous products used in the home that become waste. Paints, pesticides, and some cleaners are examples of household hazardous waste. Caution must be taken when handling, storing, or disposing of these products.

Humus—the organic portion of soil; a substance resulting from the decay of plant and/or animal matter by microorganisms.

Ignitable—capable of burning; will catch fire at temperatures less than 140° F.

Incineration—see ***combustion/incineration***.

Incinerators—see ***combustor/incinerator***.

Integrated waste management—the complementary use of a variety of waste management practices to safely and effectively handle municipal solid waste. These practices include source reduction, recycling, composting, combustion, waste-to-energy, and landfilling.

Landfill—see ***sanitary landfill***.

Landfill reclamation—the process whereby old disposal cells are excavated to recover recyclable items.

Landfilling—the process of hauling waste to a landfill cell for disposal.

Leachate—occurs when precipitation seeps through a landfill and mixes with toxic and nontoxic liquids, some of which are created during biological ***decomposition***. A ***sanitary landfill*** usually has a leachate collection system where leachate is collected from the landfill and treated to prevent the ***contamination*** of ***ground water***.

Leachate collection system—a system of layers and pipes, located between the primary and secondary liners in a landfill, designed to capture all leachate and prevent groundwater contamination.

Leachate recovery facility—a special facility designed to collect liquids leaching out of a landfill to remove harmful or particulate materials.

Life cycle—the complete cycle of events occurring over the lifetime of an animate or inanimate object. For example, in the life cycle of a plant, seeds are dropped in the ground; soil, water, and ***compost*** help the plants grow; the plants drop seeds; the plants die and become compost; new seeds grow into new plants. A product life cycle is the series of steps involved in manufacturing; distributing; using; reusing, recycling, or ultimately disposing of a product.

Liner—a layer of plastic or clay placed in a ***sanitary landfill*** to prevent ***leachate*** from escaping and contaminating surrounding ***ground water***.

Manufacturing—the process of turning raw materials into a product or good by hand or machinery.

Methane—a colorless, odorless, flammable gas formed by the ***anaerobic decomposition*** of organic waste in a landfill. Methane also is a ***greenhouse gas*** that contributes to ***global climate change***. Many ***sanitary landfills*** have a

system in place for methane gas recovery. These facilities collect some of the methane and sell it as a source of energy for heating buildings, manufacturing products, or other uses.

Microorganisms—organisms of microscopic size, such as bacteria, amoeba, and viruses.

Municipal—properties, goods, and services owned or operated by a city or county government.

Municipal solid waste—wastes such as ***durable goods***, ***disposable goods***, containers and packaging, food scraps, ***yard trimmings***, and miscellaneous inorganic wastes from households, some commercial establishments (e.g., businesses or restaurants), institutions (e.g., schools or hospitals), and some industrial sources. It does not include nonhazardous industrial wastes, sewage, agricultural waste, hazardous waste, or construction and demolition waste. Also known as garbage, trash, refuse, or debris.

Municipal solid waste landfill—see ***sanitary landfill***.

Natural resources—raw materials or energy supplied by nature and its processes (e.g., water, minerals, plants). Trees are a natural resource used to make paper, and sunlight is a natural resource that can be used to heat homes.

NIMBY (Not In My Backyard)—a term indicating the attitude of individuals who oppose siting a disposal facility in their communities.

Nonrenewable resources—naturally occurring raw materials that are exhaustible and become depleted more quickly than they naturally regenerate. Some nonrenewable resources, such as peat, petroleum, and metals, are only available in limited quantities, take a long time to form, and are used up rapidly.

Nontoxic—does not contain substances that are harmful, poisonous, or destructive.

Oil (crude oil)—unrefined liquid ***petroleum***.

Open dumps—the outdated, unsanitary practice of discarding waste in unlined, unprepared land sites.

Organic—from a living organism (e.g., plant, animal, person, or bacteria). Also refers to a product grown or manufactured only with natural materials (e.g., corn grown with compost and not chemical fertilizer or pesticides; shampoo made from plants instead of human-made chemicals).

Organism—a living body made up of cells and tissue; examples include trees, animals, humans, and bacteria.

Packaging—a cover, wrapper, container, or stabilizer (e.g., strapping or pallet) designed to store, transport, display, and protect a product and/or attract purchasers.

Pathogen—an organism that causes disease, such as *e. coli* or *salmonella typhi* bacteria.

Pay-As-You-Throw (PAYT)—see ***unit-based pricing***.

Petroleum—a fossil fuel extracted from natural deposits deep in the Earth; consists of a mixture of solids, liquids, and gases that are physically separated (refined) into products such as gasoline, wax, asphalt, and petrochemical feedstocks, which are the building blocks of many plastics. Also sometimes known as ***oil (crude oil)***.

pH—a measure of acidity or alkalinity. The pH scale ranges from 0 to 14. A substance with a value less than 7 is acidic, 7 is neutral, and above 7 is alkaline.

Pollutant—a liquid, gas, dust, or solid material that causes contamination of air, water, earth, and living organisms.

Pollution—the contamination of soil, water, or the atmosphere by the discharge of harmful substances.

Pollution prevention—preventing or reducing pollution where it originates, at the source—including practices that conserve natural resources through increased efficiency in the use of raw materials, energy, water, and land. See ***waste minimization***.

Postconsumer content—percentage of materials recovered by consumers (from the ***municipal solid waste*** stream). For example, a newspaper might be made from 30 percent recovered newsprint.

Postconsumer materials—materials recovered through recycling programs (i.e., materials recovered from the ***municipal solid waste*** stream, not from internal industrial processes). These materials are often used to make new products. Newspapers that are recycled by consumers, for example, are a postconsumer material used to make newsprint.

Preconsumer content—percentage of materials salvaged for reuse from the waste stream of a manufacturing process (rather than from consumers) subsequently used to manufacture a product.

Processing—see ***manufacturing***.

Product—item manufactured by hand or by industry for consumers to purchase and use.

Pulp—a mixture of fibrous material such as wood, rags, and paper, ground up and moistened to be used in making paper or cardboard.

Raw materials—unprocessed materials used in the manufacture of products. These unprocessed materials can be either natural substances such as wood or metals or recovered materials such as crushed glass from residential recycling.

Reactive—tending to react spontaneously with air, solids, or water, explode when dropped, or emit toxic gases.

Recovered material content—see ***recycled content***.

Recovered materials—materials used in a manufacturing process that are obtained from municipal recycling programs or collected from industrial processes (e.g., short paper fibers left over after making high-grade paper may be used to make paperboard).

Recovered resources—see ***resource recovery***.

Recycling—collecting, sorting, processing, and converting materials that would have been thrown away into ***raw materials*** used to make the same or new products.

Recycling loop—the cycle of collecting and processing, manufacturing products with recycled content, and purchasing products containing recycled materials. Consumers "close the recycling loop" when they buy recycled-content items.

Recycled content—also known as recovered material content, is the percentage of material a product is made from that has been recovered from consumers in the ***municipal solid waste*** stream (***postconsumer content***) plus any industrial materials salvaged for reuse (***preconsumer content***).

Recyclable—material that still has useful physical or chemical properties after serving its original purpose and can be reused or remanufactured to make new products. Plastic, paper, glass, steel and aluminum cans, and used oil are examples of recyclable materials.

Residential—refers to homes and neighborhoods.

Resource Conservation and Recovery Act (RCRA)—a set of regulations that control the management of hazardous waste to protect human health and the environment.

Resource recovery—the process of obtaining materials from waste that can be used as raw materials in the manufacture of new products or converting these materials into some form of fuel or energy source. An integrated resource recovery program may include recycling, waste-to-energy, composting, and/or other components.

Resources—materials used to make products, generate heat, produce electricity, or perform work. See ***natural resources***, ***nonrenewable resources***, and ***renewable resources***.

Renewable resource—naturally occurring raw material that comes from a limitless or cyclical source such as the sun, wind, water (hydroelec-

tricity), or trees. When properly used and managed, renewable resources are not consumed faster than they are replenished.

Reusable—material that can be used again, either for its original purpose, or for a new purpose.

Reuse—a type of ***source reduction*** activity involving the recovery or reapplication of a package, used product, or material in a manner that retains its original form or identity.

Runoff—water, usually from precipitation (rain), that flows across the ground—rather than soaking into it—and eventually enters a body of water. Sometimes carries substances, such as soil or contaminants, into a water body.

Sanitary landfill—a site where waste is managed to prevent or minimize health, safety, and environmental impacts. To develop a sanitary landfill, communities excavate soil and install an impermeable liner, made of plastic or clay, to prevent the contamination of ***ground water***. Waste is deposited in different cells and covered daily with soil. Sanitary landfills often have environmental monitoring systems to track performance and collect ***leachate*** and ***methane gas***. Some landfills are specially designed to handle hazardous waste.

Solid waste—see ***municipal solid waste***.

Source reduction (also known as **waste prevention**)—any change in the design, manufacture, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they become ***municipal solid waste***. Source reduction also refers to the ***reuse*** of products or materials.

Sustainability—social and environmental practices that protect and enhance the human and natural resources needed by future generations to enjoy a quality of life equal to or greater than our own.

Thermophilic—"heat loving," or surviving well in high temperatures. In the composting process, heat-loving microorganisms break down food scraps and yard trimmings into a crumbly, soil-like substance.

Tipping fee—a fee assessed for waste disposal in a sanitary landfill, waste-to-energy plant, or composting facility for a given amount of waste, usually in dollars per ton. Fees are established based on disposal facility costs and the amount disposed of at the facility.

Toxic—containing compounds that pose a substantial threat to human health and/or the environment.

Unit-based pricing/PAYT (Pay-As-You-Throw)—a system in which residents pay for municipal solid waste management services per unit of waste (by weight or volume) collected rather than through a fixed fee. Residents, for example, might purchase a sticker to place on each bag of waste set out at the curb—the price of the sticker covers the solid waste management service costs for the volume of the bag.

Vermicomposting/vermiculture—a method of composting using a special kind of earthworm known as a red wiggler (*Elsenia fetida*), which eats its weight in organic matter each day. Over time, the organic material is replaced with worm castings, a rich brown matter that is an excellent natural plant food.

Virgin materials—previously unprocessed materials. A tree that is cut into lumber to make pallets is an example of a virgin material. Lumber recovered from broken pallets to make new pallets is not a virgin material but a ***recyclable*** material.

Virgin resources—raw materials that must be mined or captured from the Earth for use in the creation of products or energy.

Waste—see ***municipal solid waste***.

Waste management—administration of activities that provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of waste.

Waste management hierarchy—the preferred way to manage solid waste is to first practice

source reduction, then *recycle* and *compost*, and finally to combust waste at a *waste-to-energy* facility or place it in a *sanitary landfill*.

Waste minimization—includes reducing waste before it is even generated (see *source reduction*) and environmentally sound recycling. Often used in relation to hazardous waste.

Waste prevention—see *source reduction*.

Waste-to-energy—a process in which waste is brought to a facility and burned to generate steam or electricity.

Waste-to-energy facilities—specially designed waste management facilities where waste is burned to create energy, which is captured for use in generating electricity.

Waste stream—the total flow of solid waste generated from homes, businesses, and institutions that must be recycled, incinerated, or disposed of in landfills.

Windrow—large, elongated pile of *yard trimmings* or other organic materials used in the composting process, typically turned by a machine. Municipal composting programs often use windrows for large-scale composting of *yard trimmings*.

Yard trimmings—grass, leaves, tree branches, brush, tree stumps, and other compostable organic materials that are generated by homes, schools, or businesses.

Glossary of Skills

Note: This resource uses the following definitions for the skills indicated in each activity.

Communication—writing or verbally expressing coherent and creative thoughts and opinions; interacting with other students to accomplish a common goal.

Computation—adding, subtracting, multiplying, dividing, or grouping numbers; recognizing and describing numerical patterns or symmetry; developing skills of estimation and judgement; using variables or equations to express relationships; developing charts, graphs, or tables to represent numerical data; giving directions or explaining ideas or concepts to others.

Motor Skills—hands-on activities such as cutting, pasting, coloring, or drawing; physical activities such as running, or, throwing and handling objects.

Observation/Classification—identifying certain physical properties or abstract qualities of objects or concepts; understanding objects or concepts according to physical or abstract similarities or differences.

Problem Solving—using prior knowledge to construct or anticipate meaning; generating and answering who, what, when, where, why questions; using data, tools, or resources to obtain information; interpreting data to explain outcomes or to predict outcomes.

Reading—reading or listening to a story, essay, dissertation, or speech; being able to comprehend, remember, and respond to questions; and following directions.

Research—using outside sources to obtain data; recording accurate data.